

# NATURAL RESOURCES CONSERVATION SERVICE

## CONSERVATION PRACTICE STANDARD

### TREE/SHRUB ESTABLISHMENT

(Ac.)

CODE 612

**DEFINITION**

Establishing woody plants by planting seedlings or cuttings, direct seeding, or natural regeneration.

**PURPOSE**

Establish woody plants for:

- forest products such as timber, pulpwood, and energy biomass
- wildlife habitat
- long-term erosion control and improvement of water quality
- treating waste
- storing carbon in biomass
- reduce energy use
- develop renewable energy systems
- improving or restoring natural diversity
- enhancing aesthetics

**CONDITIONS WHERE PRACTICE APPLIES**

Tree/shrub establishment can be applied on any appropriately prepared site where woody plants can be grown.

Utilize other practice standards for specialized tree/shrub establishment situations, e.g., Riparian Forest Buffer, 391, Alley Cropping, 311, Windbreak/Shelterbelt Establishment 380, Critical Area Planting, 342, Hedgerow Planting, 422.

**CRITERIA****General Criteria Applicable to All Purposes**

Composition of species will be adapted to site conditions and suitable for the planned purpose(s).

No plants on the Federal or state noxious weeds list shall be planted. ***Native plant materials should be used whenever possible.***

Planting or seeding rates will be adequate to accomplish the planned purpose for the site.

Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival.

Only viable, high-quality and adapted planting stock or seed will be used.

A precondition for tree/shrub establishment is appropriately prepared sites. ***Site preparation is needed if competition from grass, weeds, and/or woody materials will interfere with plant establishment and growth.*** Refer to ***WV conservation practice standards*** Tree/Shrub Site Preparation, 490, ***Herbaceous weed Control (315) and/or Brush Management, 314, as applicable.***

***Where feasible natural regeneration should be utilized. If desired, supplemental planting of trees and/or shrubs plantings may be added.***

Adequate seed sources or advanced reproduction needs to be present or provided for when using natural regeneration to establish a stand.

Selection of planting technique and timing will be appropriate for the site and soil conditions.

The acceptability and timing of coppice regeneration shall be based on species, age and diameter.

The planting will be protected from plant and animal pests and fire. If pesticides are used, refer to standard Pest Management (595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring and pest suppression.

Each site will be evaluated to determine if mulching, supplemental water or other cultural treatments (e.g., tree protection devices, shade cards, brush mats) will be needed to assure adequate survival and growth.

***Protect tree/shrub establishment practices should be protected from livestock, fire, wildlife***

***browse and other damage. See the WV conservation practice standards, Access Control, 472 and Firebreak, 394, as appropriate.***

***Effective height of protection from deer browse must be at least five feet.***

***Wet Areas/Soils – Use adapted species. Another consideration would be to plant in prepared ridges.***

***Planting methods used should be designed to minimize soil erosion.***

***Timing and use of planting equipment will be appropriate for the site and soil conditions.***

***Spacing between rows should allow sufficient room for necessary maintenance equipment.***

***The planned plant species must be tolerant of any nutrient, pesticide, mine drainage, soil condition or other chemical loading, where loading cannot be corrected.***

***Comply with applicable federal, state, and local laws and regulations during the installation, operation and maintenance of this practice.***

#### **Additional Criteria for Treating Waste**

Species used to treat waste shall have fast growth characteristics, extensive root systems, high nutrient uptake capacity and tolerance of the planned effluent.

#### **Additional Criteria for Improving or Restoring Natural Diversity**

Composition of species selected for planting or those favored for natural regeneration will be native to the site and create a successional stage or state that can progress to the potential natural plant community.

#### **Additional Criteria for Storing Carbon in Biomass**

The species and plant communities that attain biomass more quickly will sequester carbon faster. The rate of carbon sequestration is enhanced as trees and/or shrubs mature and soil organic matter increases. Select plants that have higher rates of growth and potential for carbon sequestration in biomass and are adapted to the site. Plant species at the appropriate stocking rate for the site.

#### **Additional Criteria for Developing Renewable Energy Systems**

Select plants that can provide adequate kinds and amounts of plant biomass to supply identified bioenergy needs.

Intensity and frequency of energy biomass removals will be managed to prevent long-term negative impacts on the system.

The harvesting of energy biomass shall be accomplished in a manner that will not compromise the other intended purpose(s) and functions.

#### **Additional Criteria to Reduce Energy Use**

Orient trees to shade a building to reduce summer energy usage. The first priority is placement on the building's west side where the greatest daily heat gain occurs. The second priority is the east side.

Select plants with a potential height growth that will be taller than the structure or facility being protected.

Use proper plant densities to optimize the shade produced and meet energy reduction needs.

Trees planted within 30 to 50 ft of the building generally provide effective shade to windows and walls depending on tree height potential.

Keep trees at least 10 ft or further from the structure depending on mature crown spread, to avoid damage to foundations or restrict maintenance access to windows and walls.

### **PLANS AND SPECIFICATIONS**

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

***Substrate material and site preparation necessary for proper establishment of the selected plant/seed shall be included in the design.***

***At a minimum the following will be identified in the conservation plan (as appropriate):***

- ***Purpose of tree/shrub establishment***
- ***Field location / plan view***
- ***Acreage to be establishment***
- ***Site conditions prior to establishment***
- ***Soil amendments (if needed)***
- ***Site preparation methods (if applicable)***
- ***Species to be used***
- ***Stock size (if applicable)***

- **Spacing (if applicable)**
- **Establishment method(s)**
- **Establishment dates**
- **Protection methods (if applicable)**
  - **Note dimensions and specifications of protection measures as applicable**
- **Cultural practices (i.e. pruning, forest stand improvement, etc.) (if any)**
- **Operation and maintenance requirements**
  - **Replacement strategies**
- **Any required permits, including but limited to, the CPA-052 or similar environmental documentation.**

## OPERATION AND MAINTENANCE

**The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).**

Access by vehicles or equipment during or after tree/shrub establishment shall be controlled to protect new plants and minimize erosion, compaction and other site impacts. Refer to the standard Access Control, 472.

The trees and shrubs will be inspected periodically and protected from adverse impacts including insects, diseases or competing vegetation, fire and damage from livestock or wildlife. **The planting should be inspected at least annually and after storm/fire events.**

**Damaging pests will be monitored and controlled.**

If needed, competing vegetation will be controlled until the woody plants are established. Noxious weeds will be controlled. Refer to standard Pest Management, 595 **and/or Brush Management, 314.**

Replanting will be required when survival is inadequate to **meet the objective of the practice.**

Supplemental water will be provided as needed.

Periodic applications of nutrients may be needed to maintain plant vigor. If nutrients are applied, refer to Nutrient Management, 595.

After trees and/or shrubs are established, refer to the standards Forest Stand Improvement, 666, and Tree/Shrub Pruning, 660, for subsequent management.

**Where practical, management activities will be performed outside the primary nesting season (March 15 - July 15). An exception may be for mowing or cultivation to control vegetative competition.**

**Pruning, thinning, and/or removal of dead or diseased plants should be performed and timed as to not interfere with the life cycle of the plants or the intended purpose of the planting.**

**Supplemental water will be provided as needed.**

**Additional operation and maintenance requirements may be developed on a site-specific basis to assure performance of the practice as intended.**

**\* NOTE: Information in bold italics has been added to the national standard by West Virginia**

## REFERENCES

McPherson, E. Gregory; Simpson, James R.; Perper, Paula J.; Maco, Scott E.; Gardner, Shelley L.; Cozad, Shauna K.; Xiao, Qingfu 2006. Midwest community tree guide: benefits, costs, and strategic planting. USDA Forest Service General Technical Report PSW-GTR-199, p. 1-99.

Talbert, Cheryl 2008. Achieving Establishment Success the First time. Tree Planters Notes, Vol. 52 No. 2 pages 31-317.